Diagnosis of Pancreatic Cystic Neoplasms: A Report of the Cooperative Pancreatic Cyst Study

Dear Sir:

I would like to commend Brugge et al on their recent study, which addresses the utility of endoscopic ultrasonography (EUS) and EUS coupled with fine needle aspirate (EUS-FNA) in the diagnosis of cystic neoplasms of the pancreas. However, I would like to raise my concern about the conclusions of this paper, which implies that the analysis of cyst fluid carcinoembryonic antigen (CEA) concentration via EUS-FNA is accurate and should be performed in the evaluation of a pancreatic cyst. In their study, EUS morphology, cytology, or CEA were reported to have specificities and sensitivities of 45.4% and 56.1%, 83.5% and 34.5%, or 83.6% and 75%.

When all 3 EUS criteria were used, the sensitivity increased to 91% but specificity decreased to only 31%. Thus, I interpret this study as demonstrating the poor utility of EUS-FNA in the preoperative diagnosis of pancreatic cystic neoplasms. Based on the results of this study, I question the value of performing a preoperative EUS-FNA for the diagnosis of pancreatic cystic neoplasms. With the low morbidity and mortality rates currently achievable with pancreatic resections, a patient would probably be better off if the cystic lesion is surgically removed from the onset than having the cyst fluid CEA analyzed preoperatively via EUS-FNA as approximately 16% of a pancreatic cyst.

Vandenberghe et al, reporting a constellation of regional brain activation during proximal stomach stimulation and the Role of Insula in Visceral Pain

Dear Sir:

We have read with interest the recently published study by Vandenberghe et al, reporting a constellation of regional brain activation during gastric fundus distention (GFD) by positron emission tomography (PET). Significant activation was noted in the superior temporal gyrus (BA 38), inferior frontal gyrus (BA 47) and anterior cingulate gyrus (BA24), as well as anterior insula and cerebellar hemispheres. Most of the engaged neuronal substrates were in agreement with our recent fMRI study. Both studies also showed a progressive increase of brain activation magnitude with increasing distending pressure, suggesting of no distinct neuronal networks in processing noxious (pain) and innocuous (fullness) GFD. However, several differences between these 2 studies may merit further discussion.

SI and SII are thought to be the 2 key substrates of the lateral pain system that encodes the spatial localization and intensity discrimination of the somatic sensation. The role of somatosensory cortex (SI/SII) in the processing of visceral pain is still under debate. Vandenberghe et al reported a pronounced activation of the lateral pain system (SI/SII). On the contrary, neither SI nor SII were activated during both full and painful GFD in our fMRI study, which is corroborated by 2 recent PET studies with noxious distal and non-noxious proximal stomach balloon distention. We suggested that the lack of activation in SI/SII in gastric stimulation may account for the ambiguous nature of the visceral pain. In a recent meta-analysis of functional brain imaging studies involving visceral pain in esophagus and anorectum, SI/SII were activated in the majority of reports. Furthermore, esophagus stimulation will have greater involvement of sensory (SI/SII), while anorectal stimulation will result in more activation in the affective process. Because of the intermediate anatomical position of the proximal stomach, Vandenberghe et al suggests that the brain activation pattern in the proximal stomach is a mixture of both esophagus and anorectum. However, the esophagus and anorectum are the only 2 segments in the whole GI tract having a somatic component, thus it is not surprising to have SII activation with either area being stimulated. Therefore, it seems unusual to have SII activation after stomach stimulation. In the somatic pain model, however, the intensity and type of stimulation, the varied cognitive modulation in each experimental setting, the variation of SI sulcal anatomy across subjects, and different analytic approaches will all account for the presence or absence of SI/SII activation in PET or fMRI. Hence, more studies are needed to clarify this important issue in visceral pain.

Insula is the key region which is activated in almost all of the functional brain imaging studies involving visceral pain, and this finding resonates with the description by Craig of insula as a visceral sensory area. We, in our fMRI study, further reported that the activated loci of gastric representation in the insula were clustered in a position higher than other parts of the gut (average coordinate of z axis in right insula: esophagus = −4, anorectum = 0; stomach = 6). The results suggest the possibility of a viscerotopical organization in the insula of humans, which already exists in rats. On the contrary, Vandenberghe et al reported a lower level (−2) in the maximal coordinate at right anterior insula in z axis when compared with our and the Ladabaum’s study. Therefore, a function brain image study concurrently simulating various parts of the gastrointestinal tract is heuristic to verify or dispute a viscerotopical organization in human insula.

In conclusion, the current 2 functional brain image studies coherently show that gastric pain induced by GFD is represented in the paralimbic and limbic structures, in addition to many other parts of the brain. The constellations of activation overlap substantially those